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THE PATHOLOGY AND PATHOGENESIS OF PERTHES' DISEASE

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Lantern slides were exhibited illustrating the pathological picture of the head of the femur in a case of Perthes' disease. The findings were:

1. Extensive subchondral necrosis of bone and marrow.
2. Practically complete destruction of the epiphyseal line.
3. Fragments of dead bone surrounded by granulation tissue containing many multinucleated giant cells.
4. Fibrous tissue replacement of necrotic areas.
5. Osteoid tissue growing into fibrous tissue from cartilage above and from bone below.
6. Minute hemorrhages in the under surface of the cartilage.

From a review of the reported cases where the head of the femur had been examined pathologically the question of etiology and pathogenesis were discussed. The two most likely theories, infection and vascular occlusion were compared and the former eliminated from lack of pathological evidence in favor of bacterial invasion. The latter theory, on the basis of trauma to the blood vessels of the epiphysis, was held to be the most likely one, from the fact that the lesion closely resembled an infarct and that there was evidence of damage to those structures which carry the vessels supplying the epiphysis. The age distribution of the disease was explained on this basis, since before complete ossification the head receives no blood supply from the neck or shaft. Experimental results of Müller were cited to support this contention. Healing by formation of new bone was shown to be incomplete even after several years, and doubt was expressed as to the amount of spontaneous healing by new bone formation that can be expected in this disease, within a reasonable time.